

[0012] It is desirable to provide a palatable edible product without the use of water. As described above, conventional products use water to increase the palatability of dry pet or animal foods thereby creating semi-moist pet or animal food products. It would be highly advantageous to improve shelf-stability and other characteristics by avoiding the use of high levels of water in pet or animal food products.

[0013] Further, it would be desirable to provide a palatable edible product that functions as a delivery system for various nutritional, functional or pharmaceutical ingredients. Conventional products typically cannot deliver these ingredients because conventional products require significant heat processes and/or acidic conditions for stability. Such harsh conditions alter or destroy the delicate nutritional, functional, or pharmaceutical ingredients.

SUMMARY OF THE INVENTION

[0014] The present invention provides a shelf-stable multicomponent food product having improved palatability and methods of making and using the same. The shelf-stable multicomponent pet or animal food product of the present invention can function as a delivery system for process unstable or sensitive ingredients. The delivery system is a dual texture food product having a first component containing a mixture of lipid and solid ingredients forming a cream textured matrix, in which the first component is formed without an aqueous phase and a total moisture content less than about 15 wt %. The first component includes a process unstable or sensitive ingredient. A second component contains at least one ingredient comprising a carbohydrate, fat, protein or combination thereof, the second component has a total moisture content less than about 20 wt %. The second component completely surrounds the cream-textured matrix of the first component whereby maintaining the viability of the process unstable or sensitive ingredient. The food product delivery system is formed by the co-extrusion of the first component within the second component to form one dual component extrudate.

[0015] The present invention provides a dual component pet or animal food product from an edible inner component and an edible outer component. The inner component is a mixture of lipids and solids which forms a soft cream-like matrix. Since this soft matrix is formed without needing any added water, it has minimal water content and very low water activity levels. Consequently, the soft lipid composition does not require rigorous sterilization techniques or antimicrobial/antimycotic agents for stabilization. Nor does the soft lipid composition require any moisture control ingredients. The outer component is cereal based and is preferably harder than the inner portion. The outer component can have an aligned "fibrous" texture created via extrusion process.

[0016] The combination of the two components and textures provides an advantageous increase in palatability over the same compositional ingredients made into a mono-component product. Thus, surprisingly, the present invention provides a significant improvement in palatability by having a softer lipid based center surrounded by harder shell material.

[0017] Furthermore, the present invention allows the use of simple packaging techniques because, by the lipid inner matrix being surrounded by the cereal based shell, the lipid

material is surprisingly protected from wicking through the shell. Accordingly, there is no wicking of lipids onto the packaging material for the dual component product of the present invention. Typically, high lipid content dry pet or animal foods wick onto packaging material thereby causing undesirable grease stains. The fact that the lipids are concentrated in the inner matrix and are surrounded by an outer shell component allows for the inner matrix to have a higher lipid content without wicking, than an unprotected lipid material of the prior art. Thus, the present invention provides a food component having a desirably high lipid concentration, yet still using simple packaging techniques, without any need for the specialized and costly packaging techniques usually associated with high lipid content products.

[0018] Additional objects, advantages and features of the various aspects of the present invention will become apparent from the following description of its preferred embodiments, such description being given in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019] The invention will become more apparent when the detailed description of the exemplary embodiments is considered in conjunction with the appended drawings in which:

[0020] FIG. 1 is a perspective view of a pet or animal food product of the present invention;

[0021] FIG. 2 is a schematic perspective view of a pet or animal food product of the present invention;

[0022] FIG. 3 is a schematic sectional view, along section lines AA of FIG. 2, of a pet or animal food product of the present invention; and

[0023] FIG. 4 is a graphical representation of the relationship between consumption and time comparing the palatability of a dual texture embodiment of the present invention with the palatability of two mono-texture products wherein the vertical axis represents consumption (grams) and the horizontal axis represents time (minutes).

DETAILED DESCRIPTION OF THE INVENTION

[0024] The invention provides a shelf-stable dual texture multicomponent pet or animal food product containing a softer lipid based portion contained within a shell or harder matrix material portion having significantly improved palatability, as compared to mono-textured pet or animal food products. The present invention provides increased palatability yet the food is nutritionally complete according to American Feed Controls Officials (AFCO) standards.

[0025] One aspect of the invention provides a dual texture edible product having a lipid-containing softer portion and a cereal based harder portion. The softer component is preferably a mixture of lipids and solids which forms a soft cream textured matrix. Since this soft matrix has minimal water content and very low water activity levels, it does not require harsh sterilization techniques for preservation, additional ingredients for moisture control, or antimicrobial/antimycotic agents for stabilization. Ambient shelflife studies indicate that the product of the present invention is stable, while still maintaining superior feeding performance,